



**RMP Sediment Workgroup  
2024 Meeting #1**

March 21, 2024  
1:00 PM – 4:00 PM

**MEETING SUMMARY**

**Agenda**

1. Introduction & Meeting Overview
2. Discussion: Study Site Selection
3. Discussion: 2025 Special Study Proposals

**Attendees**

<b>Name</b>	<b>Affiliation</b>
Alex Braud	SFEI
Alison Fisher	SFPUC
Allie King	SFEI
Amy Kleckner	SFEI
Brenda Goeden	BCDC
Christina Toms	SFBRWQCB
Craig Jones	Integral
Dan Nowacki	USGS
Dave Halsing	SBSRP
David Hart	USGS
David Peterson	SFEI
David Schoellhamer	USGS ret., Technical Advisor
Don Yee	SFEI
Donna Ball	SBSRP/SFEI
Heather Peterson	SFPUC

Jamie Lopez	BCDC
Jay Davis	SFEI
Jazzy Graham-Davis	SFBRWQCB
Jeremy Lowe	SFEI
Jessica Vargas	USACE
Jessie Lacy	USGS
Jim Haussener	CMANC
Jim McGrath	Retired - Chair, SFBRWQCB
Josh Gravenmier	ERM
Julie Beagle	USACE
Karen Thorne	USGS
Kyle Stark	SFEI
Lester McKee	SFEI
Lilia Mourier	SFEI
Lisa Sabin	SCVURPPP/EOA, Inc.
Luisa Valiela	EPA Region 9
Maya McInerney	BCDC
Melissa Foley	SFEI
Michael MacWilliams	FlowWest
Oliver Fringer	Stanford University
Pat Wiberg	UVA, Technical Advisor
Rachel Allen	USGS
Renee Spent	DU
Scott Dusterhoff	SFEI
Setenay Bozkurt Frucht	SFBRWQCB
Tom Mumley	SFBRWQCB, RMP Steering Committee Chair
Xavier Fernandez	SFBRWQCB

## Notes

### 1. Introduction & Meeting Overview

Scott Dusterhoff introduced the meeting as the first of two RMP Sediment Workgroup (WG) annual meetings this year, the next being a full-day meeting on May 16, 2024. Goals for the meeting included:

- Provide Karen Thorne and Jessie Lacy feedback on site selection
- Decide on proposals for 2025 funding and the proposal leads

Brenda Goeden requested DMMO updates. Don Yee indicated that finalized numbers would likely be available in a few weeks.

### 2. Discussion: Study Site Selection

Karen Thorne and Jessie Lacy led a discussion with the goal of selecting study sites for the marsh restoration accretion rate study funded by the RMP. Proposed work aimed to address four questions:

- What are the accretion rates in marsh restorations?
- What is the volume and mass of sediment in marsh restorations?
- Are these values related to restoration age, location, vegetation, distance from source?
- Will sediment accretion in restorations be adequate to create and support emergent tidal vegetated habitat?

Field data collection will involve coring for net sediment accretion with multiple types of analyses including identifying marker horizons, conducting CT scans, particle size distributions, and inorganic and organic measurements, and bulk density measurements.

The USGS team did preliminary investigations to compile a list of sites that may be suitable for this study. Karen requested that the WG weigh in on site preferences or if any sites were missing. The goal was to select five sites.

Site selection criteria to guide discussion were:

- Passive sediment supply, with no placement of fill before breaching
- Range of geographic locations/embayment in the Bay
- Range of age of restoration
- Availability of elevation data either pre-restoration or at least 10 years ago and other relevant data

The proposed list of sites included:

- South Bay:
  - Pond A6
  - Cargill Marsh
  - Faber-Laumeister Marshes
- North Bay
  - Outer Muzzi Marsh
  - Tolay Creek
  - Tubbs Island Setback
- Petaluma River
  - Bahia Wetland
  - Carl's Marsh
- Napa River
  - Pond 3
  - Pond 2A

For sites in the South Bay, there was agreement that site A6 was important. Vehicle access is

no longer available for site A6. Site A17 was proposed by the WG, as it has good access and is also a WRMP priority site. Pond E9 was also suggested. Ponds A6, A17, and E9 were breached around the same time and may have good monitoring information. Cargill Marsh was also noted as a good site, but not focused on by the WG in this discussion.

There was agreement that focus should be placed on marshes near vulnerable and disadvantaged communities. Environmental Justice goals should be included when proposing and conducting studies like this going forward. Faber Marsh was identified as a site near a disadvantaged community in East Palo Alto. Sporadic freshwater impacts are important to keep in mind at Faber Marsh. Bair Island was also discussed, although access for field work is difficult there.

Sites near the Petaluma River were discussed as potential endmember sites at the top of the range due to the high sediment supply. Napa River sites were identified as similar, but with coarser sediment. Karen and Jessie told the group that they were hoping to capture a range of sites with different characteristics in order to get a representative assessment of accretion rates in the Bay. This can be seen as a proof of concept study, with more to follow. There was some agreement that if a Petaluma site is chosen, not to choose a Napa site due to similarly high sediment supplies. Dave Schoellhamer questioned whether rates from Napa ponds would be transferable to future efforts due to their uniqueness, but they could be good as proof of concept because of their possibly well-defined marker horizon.

It was noted that Carl's Marsh evolved quickly, but most restorations since have not evolved at the same rate. Christina Toms also put forward the Petaluma Marsh Expansion as a site to explore a spectrum of conditions in that area. Jim Haussener pointed to Ray Krone's work on sediment processes there as a resource. Xavier Fernandez said he had a physical monitoring report for Bahia from 2015. Brenda Goeden noted that the larger breached portion of Cullinam is another site to consider.

### **3. Discussion: 2025 Special Study Proposals**

Scott refreshed the WG on recent work revising and developing guidance documents. Management Questions 3-5 were reviewed in development of the Sediment Monitoring & Modeling Workplan, completed Fall 2023. It was then used to update the Multi-Year Plan, also updated in Fall 2023. Upcoming work will review MQs 1-2 in 2024, and incorporate that work into the Multi-Year Plan.

Luisa Valiela gave an update on new congressionally-directed EPA funding focused on the San Francisco Bay. Approximately \$54 million is available as an annual budget for the foreseeable future. Priorities for this funding have been grouped into 11 "Buckets." Sediment-related work crosses programs/Buckets. This is a level of transformational funding, allowing us to "move the needle." Luisa encouraged the group to keep this in mind when forming ideas for science to inform management and for implementation projects. For FY24, they are not running a competition for funding, but rather developing justifications for exceptions to competition. For FY25, most funds will be open for competition, but there will still be some exceptions.

Jay Davis mentioned that the RMP could be expecting about a 50% increase in funds allocated to each Workgroup for 2025. He encouraged the group to think big, and get in position to take on bigger or more projects. The RMP is working on an exception request for the EPA funding.

Scott outlined how the SedWG is responding to this new funding prospect. An idea for funding

from the first year is a proposal to fund a fixed-station monitoring network to monitor flow, sediment and contaminants. This is a high priority project in the Multi-Year Plan, and for other Workgroups as well.

Brenda brought up the idea of expanding use of USACE instrument arrays in the Bay or installing new ones. These arrays were installed to monitor sediment movement as part of the USACE's Strategic Placement pilot project. Julie Beagle agreed this would be good, and has discussed leveraging projects with the WRMP TAC.

Scott then shifted to discussing Special Study Proposals for 2025. Proposals were selected from the Multi-Year Plan to match the ~\$280k expected funding for this WG. These were termed "Tier 1" proposals. The WG can also develop brief 1-page proposals, termed "Tier 2," that total no more than \$200k. All proposals will be presented and discussed in the May meeting to discuss improvements, decide which to move forward with and rank for the Technical Review Committee. Proposals not moved forward will be put on the SEP list.

### Tier 1 Ideas

1. Develop an update to the sediment conceptual model (~\$50k)

The group discussed incorporating new knowledge from recent studies, especially related to sand transport. This could be done at the full-Bay scale, but focusing on a subembayment is relevant for ongoing strategic placement studies. If it is a Bay-scale update on sand processes, beaches will need to be considered.

2. Workplan for bed erodibility study to support model calibration (~\$50k)
3. Workplan for settling velocity to support model calibration (~\$50k)

Lester McKee noted that a workplan would likely include site selection, stakeholder consultation, and modeler consultation. Subsequent work would need to have more funding.

Oliver Fringer said the greatest sources of uncertainty in modeling are currently: 1) settling velocity, and 2) composition of bed sediment when it is eroded. He suggested not to work on mapping bed erodibility, but rather take cores to understand bed characteristics.

There was general consensus not to map bed erodibility, but rather take many shallow cores to inform composition of the bed. The workplan might develop the grid of cores whose data will support modeling. Deep cores might be something to consider for future funding as 3 deep cores cost ~\$800k.

For settling velocity, it was discussed that, although it is extremely difficult to measure, it is important to put effort into constraining the parameter. Rachel Allen has some work related to this coming out soon, and she was interested in developing a workplan to further this work.

The group decided that these two efforts should be merged into a single workplan. Oliver was identified as a possible lead, with Jessie, Rachel and the USGS in close collaboration. It is critical that modelers and field staff work together to tackle these issues.

4. Using satellite imagery to analyze turbidity and SSC (~120k)

This proposal will be led by Oliver Fringer. There was discussion of some uncertainty with the

methods, noting that deep water sediment cannot be remotely sensed. To address this, field sampling would be conducted to relate surface turbidity sensed by the satellite to SSC throughout the water column. It was acknowledged that the tool will be most accurate in the shallow areas. This is a first step toward long-term understanding of sediment flux via 3D modeling.

Donna Ball pointed to this relevant USGS study on turbidity monitoring in the South Bay: <https://agu.confex.com/agu/fm23/meetingapp.cgi/Paper/1362909>

### Tier 2 Ideas

Tier 2 proposal ideas put forth were:

- Shoreline change study (~\$50k)
- Monitoring of sediment flux at key Bay locations (~\$100k)
- Monitoring of sediment flux and deposition at key Bay margin locations (~\$100k)

Scott pointed to the need to discuss bandwidth when considering Tier 2 ideas. For instance, a priority is monitoring flux between embayments, however David Hart and USGS staff may be limited. Karen added that other USGS centers could assist, with David advising.

The group discussed the need for monitoring flux at the Golden Gate. Dumbarton Bridge was proposed as a good site to install multiple sensors. Other ideas included work to monitor bedload flux.

Scott noted that he would follow up individually with those involved in proposal writing. He then adjourned the meeting